

Instruction Manual



Genesis[®] G4 HD
Heavy Duty
Hydro-Pneumatic Power Tool

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Warranty

Avdel installation tools carry a 12 month warranty against defects caused by faulty materials or workmanship, the warranty period commencing from the date of delivery confirmed by invoice or delivery note.

The warranty applies to the user/purchaser when sold through an authorised outlet, and only when used for the intended purpose. The warranty is invalidated if the installation tool is not serviced, maintained and operated according to the instructions contained in the Instruction and Service Manuals.

In the event of a defect or failure, and at its sole discretion, Avdel undertakes only to repair or replace faulty components.

Safety Rules

This instruction manual must be read with particular attention to the following safety rules, by any person installing, operating, or servicing this tool.

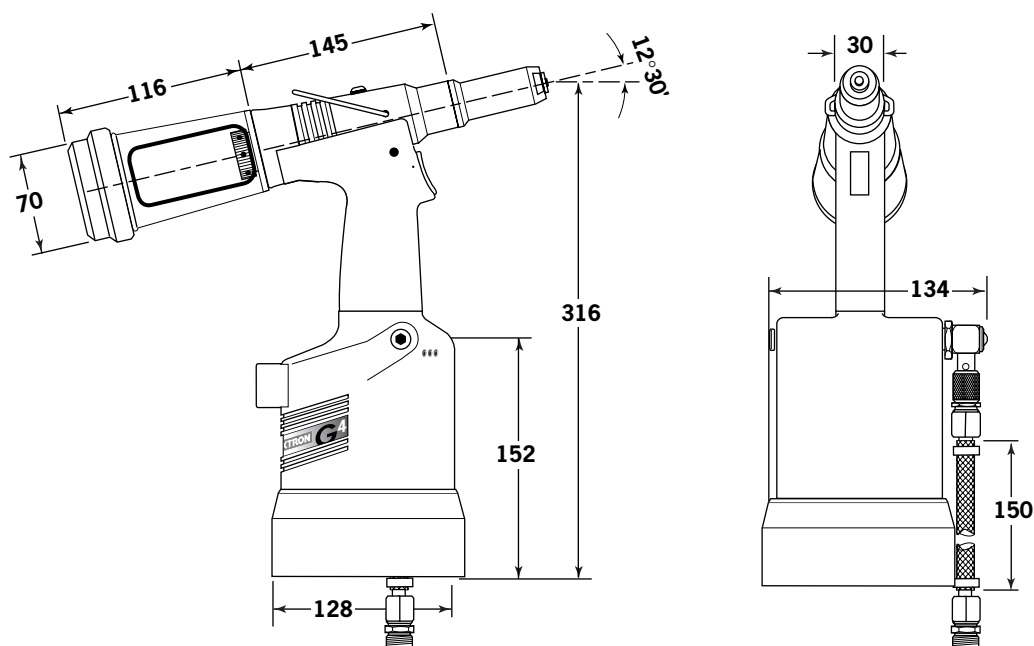
- 1 Do not use outside the design intent.
- 2 Do not use equipment with this tool/machine other than that recommended and supplied by Avdel UK Limited.
- 3 Any modification undertaken by the customer to the tool/machine, nose assemblies, accessories or any equipment supplied by Avdel UK Limited or their representatives, shall be the customer's entire responsibility. Avdel UK Limited will be pleased to advise upon any proposed modification.
- 4 The tool/machine must be maintained in a safe working condition at all times and examined at regular intervals for damage and function by trained competent personnel. Any dismantling procedure shall be undertaken only by personnel trained in Avdel UK Limited procedures. Do not dismantle this tool/machine without prior reference to the maintenance instructions. Please contact Avdel UK Limited with your training requirements.
- 5 The tool/machine shall at all times be operated in accordance with relevant Health and Safety legislation. In the U.K. the "Health and Safety at Work etc. Act 1974" applies. Any question regarding the correct operation of the tool/machine and operator safety should be directed to Avdel UK Limited.
- 6 The precautions to be observed when using this tool/machine must be explained by the customer to all operators.
- 7 Always disconnect the airline from the tool/machine inlet before attempting to adjust, fit or remove a nose assembly.
- 8 Do not operate a tool/machine that is directed towards any person(s) or the operator.
- 9 Always adopt a firm footing or a stable position before operating the tool/machine.
- 10 Ensure that vent holes do not become blocked or covered.
- 11 The operating pressure shall not exceed 7 bar.
- 12 Do not operate the tool if it is not fitted with a complete nose assembly unless specifically instructed otherwise.
- 13 Care shall be taken to ensure that spent stems are not allowed to create a hazard.
- 14 If the tool is fitted with a stem collector, it must be emptied when half full.
- 15 If the G4 tool is fitted with a stem deflector, it should be rotated until the aperture is facing away from the operator and other person(s) working in the vicinity.
- 16 When using the tool, the wearing of safety glasses is required both by the operator and others in the vicinity to protect against fastener ejection, should a fastener be placed 'in air'. We recommend wearing gloves if there are sharp edges or corners on the application.
- 17 Take care to avoid entanglement of loose clothes, ties, long hair, cleaning rags etc. in the moving parts of the tool which should be kept dry and clean for best possible grip.
- 18 When carrying the tool from place to place keep hands away from the trigger/lever to avoid inadvertent start up.
- 19 Excessive contact with hydraulic fluid oil should be avoided. To minimize the possibility of rashes, care should be taken to wash thoroughly.

Specifications

Tool Specifications

Air Pressure	Minimum - Maximum	5-7 bar (72.5 - 101.5 psi)
Free Air Volume Required	@ 5.5 bar	4.3 litres (0.15 cuft)
Stroke	Minimum	17 mm (0.7 in)
Pull Force	@ 5.5 bar	18.68 kN (4200 lbf)
Cycle time	Approximately	1.2 seconds
Noise Level		75 dB(A)
Weight	Without nose equipment	2.35 kg (5.17 lb)
Vibration	Less than	2.5 m/s ² (8.2 ft/s ²)

Tool Dimensions



Dimensions in millimetres.

Intent of Use

Range of Fasteners

G4 HD is a hydro-pneumatic tool designed to place Avdel® breakstem fasteners at high speed making it ideal for batch or flow-line assembly in a wide variety of applications throughout all industries. It can place all fasteners listed opposite.

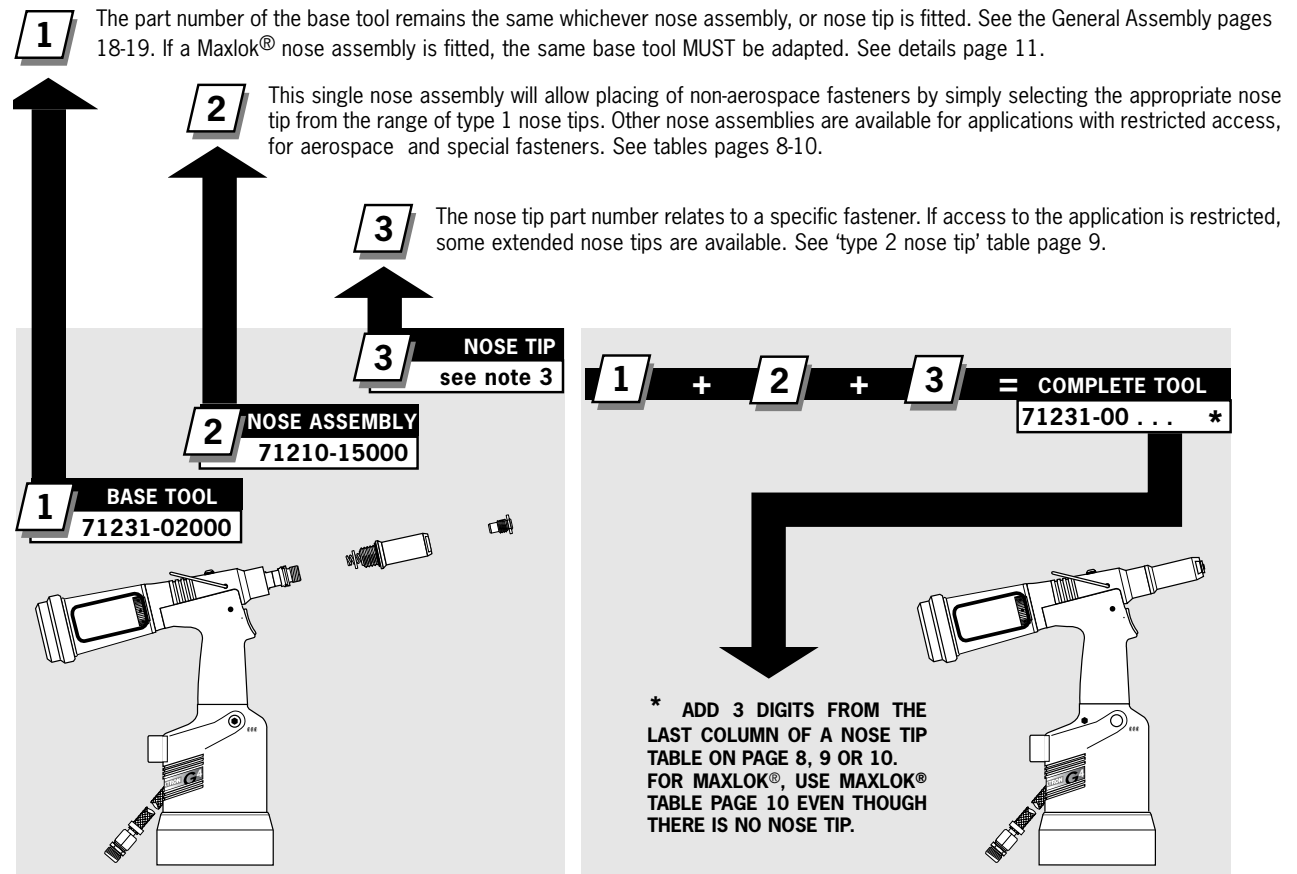
The tool features an adjustable vacuum system for fastener retention and trouble free collection of the spent stems regardless of tool orientation. See the 'Operating Procedure' on page 7 for adjustment instructions.

A complete tool is made up of three separate elements which will be supplied individually. See diagram below.

NOSE EQUIPMENT MUST BE FITTED AS DESCRIBED ON PAGES 8-11.

FASTENER NAME	FASTENER SIZE ($\frac{\text{MM}}{\text{IN}}$)											
	4.3	4.8	5	5.2	6	6.4	6.5	7	8	9	9.5	10
	-	$\frac{3}{16}$	-	-	-	$\frac{1}{4}$	-	-	-	-	$\frac{3}{8}$	-
AVEX®		●				●						
STAVEX®		●				●						
AVINOX®		●										
AVIBULB®		●			●							
BULBEX®		●										
T-LOK®	●	●										
AVDEL® SR		●				●						
INTERLOCK®		●				●						
HEMLOK®						●						
TLR®		●				●						
MAXLOK®		●				●						
AVTAINER®											●	
AVDEL®		●										
MBC		●										
MBC/LC		●										
AVSEAL®									●	●		●
Q™ RIVET		●				●						
T™ RIVET		●				●						
CHERRYMATE™		●				●						

Part Numbering



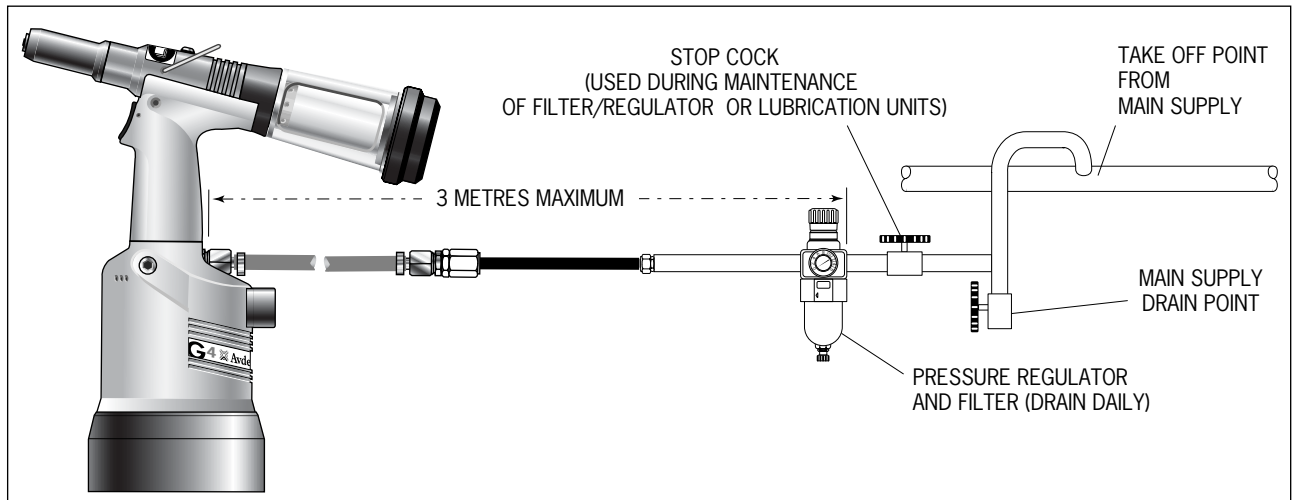
Putting into Service

Air Supply

All tools are operated with compressed air at an optimum pressure of 5.5 bar. We recommend the use of pressure regulators and automatic filtering systems on the main air supply. These should be fitted within 3 metres of the tool (see diagram below) to ensure maximum tool life and minimum tool maintenance.

Air supply hoses should have a minimum working effective pressure rating of 150% of the maximum pressure produced in the system or 10 bar, whichever is the highest. Air hoses should be oil resistant, have an abrasion resistant exterior and should be armoured where operating conditions may result in hoses being damaged. All air hoses MUST have a minimum bore diameter of 6.4 millimetres or 1/4 inch.

Read daily servicing details page 13.



Operating Procedure

ALL FASTENERS EXCEPT AVTAINER® AND MAXLOK®

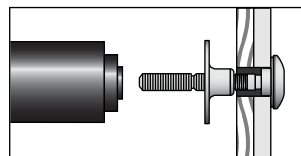
- Ensure that a nose assembly suitable for the fastener is fitted (see pages 8-10).
- Connect the tool to the air supply.
- Insert the fastener stem into the nose of the tool. The fastener should remain held in by the vacuum system. If not, adjust the vacuum extraction rotary valve **65** (see note below).
- Bring the tool with the fastener to the application so that the protruding fastener enters squarely the hole of the application.
- Fully actuate the trigger. The tool cycle will broach the fastener and the broken stem will be projected to the rear of the tool.

AVTAINER® AND MAXLOK®

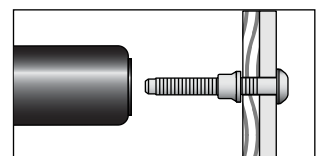
- Ensure that the correct nose assembly is fitted.
- Connect the tool to the air supply.
- Disable the vacuum extraction system by turning rotary valve **65** until you feel or hear no air flow out of the front of the nose assembly.
- Push the Maxlok® or Avtainer® stem through the application hole.
- Place the collar on the stem (orientation as shown below).
- Keeping the head of the stem against the application, push the tool onto the protruding stem.
- Fully depress the trigger. One cycle will ensure that the collar is swaged into the lock grooves of the stem and that the stem breaks at the breaker groove.
- Release the trigger. The tool completes its cycle by pushing itself off the collar and the spent stem will be pushed to the rear of the tool on insertion of the next fastener.

Adjusting Vacuum Extraction

- Using a screwdriver, turn rotary valve **65** until the air flow at the rear of the tool ceases.
- With the nose of the tool pointing downwards, insert a fastener other than Avtainer® or Maxlok®, into the nose and hold it into position.
- Turn the rotary valve either way until there is sufficient suction to retain the fastener.



Placing AVTAINER®



Placing MAXLOK®

Item numbers in **bold** refer to the general assembly drawing and parts list on pages 18-19.

Nose Assemblies

Nose Tips

IMPORTANT

Nose assemblies do NOT include nose tips. Nose tips must be ordered separately.

A tool must always be fitted with the correct nose assembly and nose tip for your fastener and must be ordered separately, refer to the 'NOSE TIPS' tables below and pages 9-10.

If your application presents no access restriction use a type 1 nose tip unless you are placing aerospace fasteners which require a type 3 nose tip, Avtainer® a type 5, Hemlok® and 1/4" Interlock® a type 6. Maxlok® requires a special nose assembly which does not make use of any nose tip, see pages 10-11.

Dimensions 'A' and 'B' will help you assess the suitability of a particular nose tip.

You should also check that the dimensions of the nose casing will not restrict access to your application. If access is restricted type 2 nose tips with extra reach, are available for some fasteners. Refer to the table on page 9.

It is essential that a fastener-compatible nose assembly and nose tip are fitted prior to operating the tool (no nose tip with Maxlok®).

Fitting Instructions

See page 9, except for Avtainer® and Maxlok® see page 11.

IMPORTANT

The air supply must be disconnected when fitting or removing nose assemblies.

TYPE 1 NOSE TIPS

¹ In inches then in millimetres.

² Head forming nose tips for use with countersunk heads ONLY.

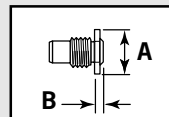
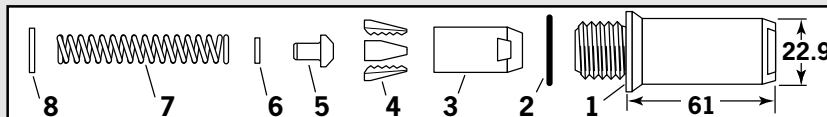
³ Long nose tip for deep placing.

⁴ Material of the body then of the stem. 'Al' is the abbreviation for Aluminium.

NOSE ASSEMBLY part n° 71210-15000

ITEM	DESCRIPTION	PART N°
1	NOSE CASING	07340-00306
2	'O' RING	07003-00067
3	JAW HOUSING	07340-00304
4	JAWS	71210-15001
5	JAW SPREADER	07498-04502
6	BUFFER	71210-05001
7	SPRING	07500-00418
8	LOCKING RING	07340-00327

NAME	FASTENER		MATERIAL	NOSE TIP (mm)			see below
	Ø ¹			PART N°	'A'	'B'	
AVEX® Large flange	3/16	4.8	Aluminium	07381-04701	12.7	2.8	... 010
	3/16	4.8	Aluminium	07340-04800	19.0	3.3	... 016
	3/16	4.8	Steel	07490-04401	12.7	3.3	... 017
	3/16	4.8	Aluminium	07340-06601 ²	12.7	4.1	... 015
	1/4	6.4	Aluminium	07612-02001	12.7	3.3	... 021
STAVEX® Countersunk Large flange	3/16	4.8	Steel	07381-04701	19.0	3.3	... 016
	3/16	4.8	Steel	07381-04701	12.7	2.8	... 010
	3/16	4.8	Stainless Steel	07381-04701	12.7	2.8	... 010
	3/16	4.8	Steel	07340-04800	12.7	2.8	... 010
	1/4	6.4	Steel	07612-02001	12.7	2.8	... 021
BULBEX®	3/16	4.8	Aluminium	07381-04701	12.7	2.8	... 010
AVSEAL®	—	8	Aluminium	71220-16006	12.7	5.5	... 165
	—	8	Aluminium	71220-16011 ³	12.7	7.3	... 185
	—	9	Aluminium	71220-16007	12.7	5.6	... 166
	—	9	Aluminium	71220-16012 ³	12.7	7.3	... 186
	—	10	Aluminium	71220-16008	12.7	5.6	... 167
	—	10	Aluminium	71220-16013 ³	12.7	7.3	... 187
TLR®	3/16	4.8	Aluminium	07605-00220	12.7	4.1	... 140
	1/4	6.4	Aluminium	71220-16080	12.7	4.4	... 141
AVINOX® II	3/16	4.8	Stainless Steel	07498-01401	12.7	4.8	... 082
T-LOK®	—	4.3	Steel	07340-06201	12.7	3.3	... 120
	3/16	4.8	Steel	07340-06201	12.7	3.3	... 120
AVIBULB®	3/16	4.8	Steel	07498-01401	12.7	4.8	... 082
	—	6	Steel	07612-02001	12.7	3.3	... 021
AVDEL® SR	3/16	4.8	Any	07348-07001	12.7	5.7	... 062
	1/4	6.4	Any	71220-60001	12.7	3.3	... 063
Countersunk	3/16	4.8	Any	71210-16050	12.7	5.7	... 064
INTERLOCK®	3/16	4.8	Any	07381-04701	12.7	2.8	... 010
Q™ RIVET	3/16	4.8	Any	07340-06201	12.7	3.3	... 120
	1/4	6.4	Any	07612-02001	12.7	3.3	... 021
CHERRYIMATE®	3/16	4.8	Any	07340-06201	12.7	3.3	... 120
	1/4	6.4	Any	07612-02001	12.7	3.3	... 021
T™ RIVET Large flange Large flange Large flange Large flange	3/16	4.8	Al/Al4	703-A-25-6TA	15.9	9.5	... 380
	3/16	4.8	Al/Al4	703-B-21	12.7	8.0	... 381
	3/16	4.8	Al/Steel4	703-A-25-6T	15.9	9.5	... 383
	3/16	4.8	Al/Steel4	703-B-26	12.7	9.0	... 384
	1/4	6.4	Al/Al4	743-A-25-8TA	17.5	11.2	... 385
	1/4	6.4	Al/Al4	743-B-21	12.7	8.0	... 386
	1/4	6.4	Al/Steel4	743-A-25-8T	16.7	10.2	... 387
	1/4	6.4	Al/Steel4	743-B-26	12.7	8.3	... 388



**COMPLETE TOOL
PART NUMBER :**
precede with
71231-00

Nose Assemblies

Nose Tips

Item numbers in **bold** refer to nose assembly components in type 1, 2, 3 and 6 nose tip tables.

- Lightly coat jaws **4** with Moly lithium grease*.
- Drop jaws **4** into jaw housing **3**.
- Insert jaw spreader **5** into jaw housing **3**.
- Locate buffer **6** on jaw spreader **5**.
- Locate spring **7** onto jaw spreader **5**.
- Fit locking ring **8** onto the jaw spreader housing.
- Holding tool pointing down, screw the assembled jaw housing onto the jaw spreader housing and tighten with spanner*.
- Screw the nose tip into nose casing **1** and tighten with spanner*.
- Place nose casing **1** with 'O' ring **2** over jaw housing **3** and screw onto the tool, tightening with spanner*.

TYPE 2 NOSE TIPS

NOSE ASSEMBLY
part n° 71210-15200

ITEM	DESCRIPTION	PART N°
1	NOSE CASING	07340-02804
2	'O' RING	07003-00067
3	JAW HOUSING	07340-00304
4	JAWS	71210-15001
5	JAW SPREADER	07498-04502
6	BUFFER	71210-05001
7	SPRING	07500-00418
8	LOCKING RING	07340-00327

NAME	FASTENER		MATERIAL	NOSE TIP (mm)			see below
	Ø ¹			PART N°	'A'	'B'	
AVEX®	3/16	4.8	Aluminium	07340-02807	12.7	10.0	... 0 1 4
	3/16	4.8	Steel	07340-07301	12.7	11.8	... 0 1 8
BULBEX®	3/16	4.8	Aluminium	07340-02807	12.7	10.0	... 0 1 4
T-LOK®	-	4.3	Steel	07241-07101	12.7	10.0	... 1 2 1
	3/16	4.8	Steel	07241-07101	12.7	10.0	... 1 2 1

¹ In inches then in millimetres.

TYPE 2 NOSE TIPS ARE EXTENDED TO ALLOW ACCESS INTO APPLICATIONS WHERE TYPE 1 NOSE TIPS WILL NOT REACH.

COMPLETE TOOL PART NUMBER :
precede with 71231-00

TYPE 3 NOSE TIPS

NOSE ASSEMBLY
part n° 71210-15300

ITEM	DESCRIPTION	PART N°
1	NOSE CASING	07344-02001
2	'O' RING	07003-00067
3	JAW HOUSING	07340-00304
4	JAWS	71210-15001
5	JAW SPREADER	07498-04502
6	BUFFER	71210-05001
7	SPRING	07500-00418
8	LOCKING RING	07340-00327

NAME	FASTENER		MATERIAL	NOSE TIP (mm)			see below
	Ø ¹			PART N°	'A'	'B'	
AVDEL®	3/16	4.8	Aluminium	71210-16036	12.7	2.5	... 2 9 3
	3/16	4.8	Aluminium O	71210-16037	12.7	2.5	... 2 9 4
	3/16	4.8	Stainless Steel	71220-16038	12.7	2.4	... 2 9 5
MBC	3/16	4.8	Any	07340-06901	12.7	5.1	... 3 1 0
MBC L/C	3/16	4.8	Any	07344-04701	12.7	4.6	... 3 2 0

¹ In inches then in millimetres. **O** Oversize

TYPE 3 NOSE TIPS ARE SPECIFICALLY FOR THE AEROSPACE FASTENERS LISTED ABOVE.

COMPLETE TOOL PART NUMBER :
precede with 71231-00

TYPE 6 NOSE TIPS

COMPLETE TOOL PART NUMBER :
precede with 71231-00

NAME	FASTENER		MATERIAL	NOSE TIP (mm)			see above
	Ø ¹			PART N°	'A'	'B'	
HEMLOK®	1/4	6.4	Any	07612-02001	14.3	3.6	... 2 6 1
INTERLOCK®	1/4	6.4	Any	07612-02001	14.3	3.6	... 2 6 1

ITEM	DESCRIPTION	PART N°
1	NOSE CASING	07340-00306
2	'O' RING	07003-00067
3	JAW HOUSING	07612-02003
4	JAWS	07612-02002
5	JAW SPREADER	07498-04502
6	BUFFER	07498-03003
7	SPRING	07500-00418
8	LOCKING RING	07340-00327

¹ In inches then in millimetres.

* Item included in the G4 service kit. For complete list see page 15.

Nose Assemblies

Nose Tips

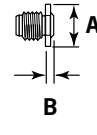
TYPE 5 NOSE TIP

FASTENER			NOSE TIP (mm)			see below
NAME	Ø ¹	MATERIAL	PART N°	'A'	'B'	
AVTAINER®	3/8	9.6	Steel	07498-00802	19.1	4.1

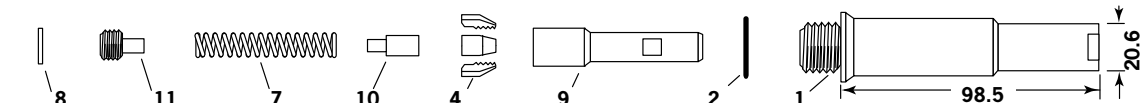
¹ In inches then in millimetres

NOSE ASSEMBLY part n° 71230-15600

ITEM	DESCRIPTION	PART N°	ITEM	DESCRIPTION	PART N°
1	NOSE CASING	07498-00501	10	FRONT SPRING GUIDE	07498-00803
2	'O' RING	07003-00067	7	SPRING	07500-02005
9	CHUCK COLLET	07498-00801	11	REAR SPRING GUIDE	07498-00503
4	JAWS	07220-02302	8	LOCKING RING	07340-00327



COMPLETE TOOL
PART NUMBER :
precede with
71231-00



MAXLOK® NO NOSE TIP

FASTENER			NOSE ASSEMBLY	see below
NAME	Ø ¹	MATERIAL	PART N°	
MAXLOK®	3/16	4.8	All	07610-02000
	1/4	6.4	All	07610-02100

¹ In inches then in millimetres

NOSE ASSEMBLY part n° 07610-02000 for 3/16" Ø

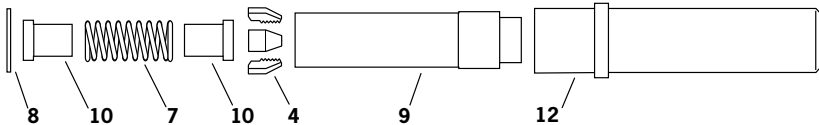
ITEM	DESCRIPTION	PART N°
9	CHUCK COLLET	07610-02002
4	JAWS	07610-02003
10	SPRING GUIDE	07220-02104
7	SPRING	07610-02107
8	LOCKING RING	07610-02004
12	ANVIL	07610-02001

NOSE ASSEMBLY part n° 07610-02100 for 1/4" Ø

ITEM	DESCRIPTION	PART N°
9	CHUCK COLLET	07610-02102
4	JAWS	07610-02103
10	SPRING GUIDE	07220-02104
7	SPRING	07610-02107
8	LOCKING RING	07610-02004
12	ANVIL	07610-02101

COMPLETE TOOL PART NUMBER :
precede with 71231-00

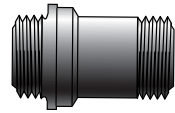
The three adapting components illustrated below left are not included in the nose assembly part number. Each item must be ordered separately, using individual part numbers.



**07610-00501
CHUCK COLLET ADAPTOR**



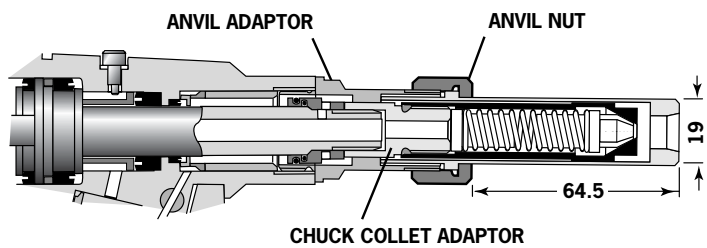
**71230-02063
ANVIL ADAPTOR**



**07610-00307
ANVIL NUT**



**THE THREE COMPONENTS ILLUSTRATED LEFT ARE ESSENTIAL WHEN FITTING A MAXLOK® NOSE ASSEMBLY TO THE G4 TOOL.
READ MAXLOK® 'FITTING INSTRUCTIONS' PAGE 11.**



Nose Assemblies

Fitting instruction for Maxlok® and Avtainer® Nose Assemblies

IMPORTANT

The air supply must be disconnected when fitting or removing any nose assembly unless specifically instructed otherwise.

The air vacuum extraction system **MUST** be disabled before operating a G4 tool with a Maxlok® or Avtainer® nose assembly.

Refer to the 'Operating Procedure' for Avtainer® and Maxlok®, page 7.

AVTAINER®

Item numbers in **bold** refer to the general assembly and parts list pages 18-19. Other items numbers refer to the 'type 5 nose tip' table page 10.

- Remove jaw spreader housing **1**, 'O' ring **2**, and vacuum sleeve **51**.
- Replace jaw spreader housing **1**, 'O' ring **2**.
- Lightly coat jaws **4** with Moly Lithium grease*.
- Drop jaws **4** into chuck collet **9**.
- Insert front spring guide **10** into chuck collet **9**.
- Locate spring **7** onto front spring guide **10**.
- Screw rear spring guide **11** into chuck collet **9**.
- Fit locking ring **8** onto the jaw spreader housing of the tool.
- Screw the assembled chuck collet onto the jaw spreader housing and tighten with spanner.
- Screw the nose tip into nose casing **1** and tighten with spanner*.
- Place nose casing **1** with 'O' ring **2** over chuck collet **9** and screw onto the tool, tightening with spanner*

MAXLOK®

When fitting a Maxlok® nose assembly, the base tool must be adapted using three auxiliary components illustrated page 10.

Item numbers in **bold** refer to the general assembly and parts list pages 18-19. Other items numbers refer to the 'Maxlok® no nose tip' table page 10.

- Remove jaw spreader housing **1**, 'O' ring **2**, and vacuum sleeve **51**.
- Substitute jaw spreader housing **1** with chuck collet adaptor 07610-00501. Tighten fully onto piston before tightening the locknut against it.
- Fit locking ring **8** onto the chuck collet adaptor.
- Lightly coat jaws **4** with Moly lithium grease.
- Drop jaws **4** into or chuck collet **9**.
- Insert one spring guide **10** into chuck collet **9**.
- Locate spring **7** onto the spring guide already in place.
- Drop the other spring guide **10** into spring **7**.
- Holding tool pointing down, screw the assembled chuck collet onto the chuck collet adaptor and tighten with spanner.
- Screw anvil adaptor 71230-02063 into the head assembly.
- Place anvil **12** over chuck collet **9** and lock into place with anvil nut 07610-00307.

Servicing instructions for all Nose Assemblies

Nose assemblies should be serviced at weekly intervals. You should hold some stock of all internal components of the nose assembly and nose tips as they will need regular replacement.

- Remove the nose assembly using the reverse procedure to the 'Fitting instructions'.
- Any worn or damaged part should be replaced.
- Clean and check wear on jaws.
- Ensure that the jaw spreader is not distorted.
- Check that the spring is not distorted.
- On nose assemblies for Maxlok® and Avtainer® check that the spring guides are not distorted.
- On nose assemblies for Maxlok® check that the anvil is neither cracked nor has any scoring or corrosion marks on the inside face of the concave shape at the front end.
- Assemble according to fitting instructions.

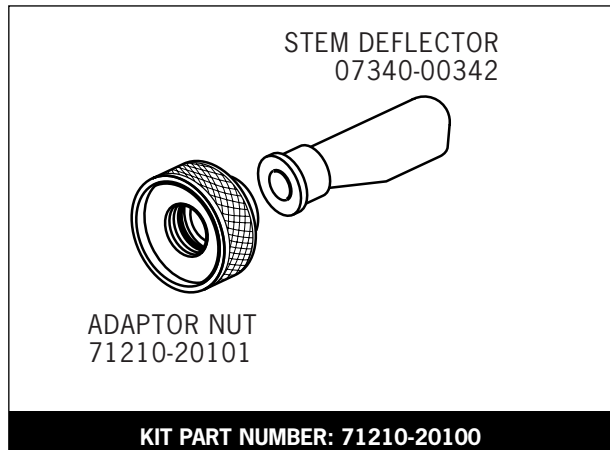
* Item included in the G4 service kit. For complete list see page 15.
Item numbers in **bold** refer to the general assembly drawing and parts list on pages 18-19.

Accessories

Stem Deflector

The stem deflector is a very simple alternative to the standard stem collector and allows access in restricted areas. It is easy to fit to the tool as follows:

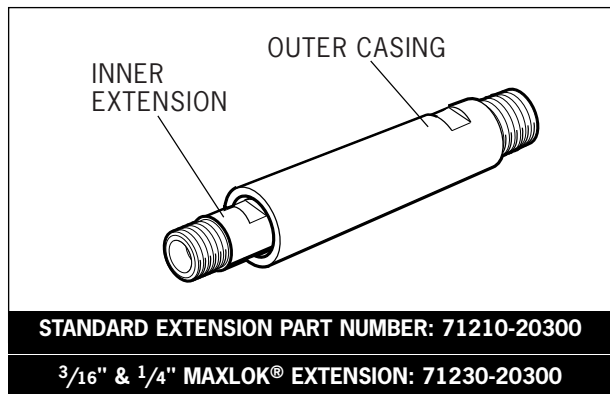
- Unscrew retaining nut **26** by inserting a 3 millimetre diameter rod into one of the holes.
- Remove retaining nut **26** and the stem collector assembly, items **18, 20, 21, 22, 23, 24,** and **25.**
- Screw adaptor nut onto end cap **73.**
- Push the boss end of the stem deflector into the internal groove of the adaptor nut.
- Rotate the stem deflector until the aperture faces away from the operator and other person(s) in the vicinity.



Extension

Fitted between the tool and the nose assembly, the extension gives an extra reach of 76 millimetres, ideal for use in deep narrow applications.

- To fit the extension, remove any nose assembly components.
- Screw the inner extension onto jaw spreader housing **1.**
- Screw the outer casing onto head assembly **4.**
- Screw the nose assembly onto the extension.

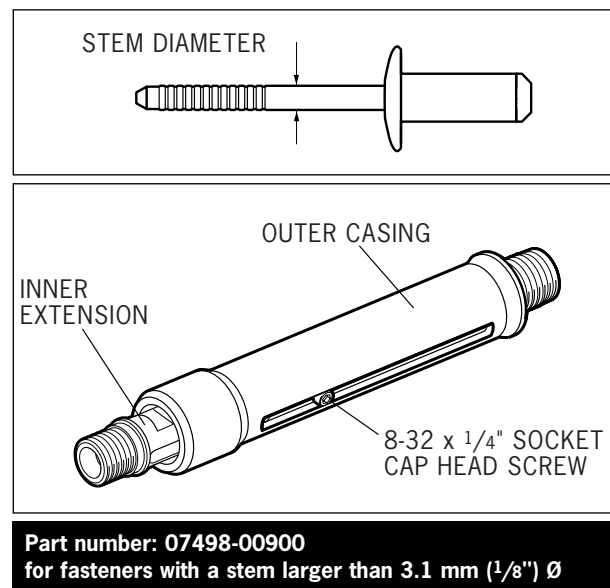


Side Ejector

Fitted between the tool and the nose assembly, the side ejector forces fastener stems to eject at the front of the tool and gives an extra reach of 90mm. It is not an option when placing Maxlok® fasteners.

- To fit the side ejector, remove any nose assembly components.
- Remove the socket cap screw from the side ejector.
- Screw the inner extension onto jaw spreader housing **1.**
- Screw the outer casing onto head assembly **4.**
- Replace the socket cap screw securing with Loctite Screwlock 222, part number 07900-00371.
- Screw the nose assembly onto the side ejector.

For greater ease of use, it is recommended that the stem collector or stem deflector is replaced with safety cap part number 71210-20201.



Item numbers in **bold** refer to the general assembly drawing and parts list on pages 18-19.

Servicing the Tool

IMPORTANT

Read Safety Instructions on page 4.

The employer is responsible for ensuring that tool maintenance instructions are given to the appropriate personnel.

The operator should not be involved in maintenance or repair of the tool unless properly trained.

The tool shall be examined regularly for damage and malfunction.

Daily

- Daily, before use or when first putting the tool into service, pour a few drops of clean, light lubricating oil into the air inlet of the tool if no lubricator is fitted on air supply. If the tool is in continuous use, the air hose should be disconnected from the main air supply and the tool lubricated every two to three hours.
- Check for air leaks. If damaged, hoses and couplings should be replaced.
- If there is no filter on the pressure regulator, bleed the air line to clear it of accumulated dirt or water before connecting the air hose to the tool. If there is a filter, drain it.
- Check that the nose assembly is correct for the fastener to be placed.
- Check that the stroke of the tool meets the minimum specification (page 5). The last step of the Priming Procedure on page 21 explains how to measure the stroke.
- Either a stem collector or a stem deflector must be fitted to the tool if the vacuum extraction is 'ON'. If it is turned 'OFF' a safety cap must be fitted. See 'side ejector' opposite.
- Check that base cover **40** is fully tightened onto body **38**.
- Ensure that rotary valve **65** is correctly adjusted for fastener retention or turned off for Avtainer® and Maxlok® (see 'Operating Procedure' page 7).

Weekly

- Dismantle and clean nose assembly, with special attention to the jaws. Lubricate with Moly Lithium grease EP 3753 before assembling.
- Check for air leaks.

Moly Lithium Grease EP 3753 Safety Data

Grease can be ordered as a single item, the part number is shown in the service kit page 15.

First Aid

SKIN:

As the grease is completely water resistant it is best removed with an approved emulsifying skin cleaner.

INGESTION:

Ensure the individual drinks 30ml Milk of Magnesia, preferably in a cup of milk.

EYES:

Irritant but not harmful. Irrigate with water and seek medical attention.

Fire

FLASH POINT: Above 220°C.

Not classified as flammable.

Suitable extinguishing media: CO₂, Halon or water spray if applied by an experienced operator.

Environment

Scrape up for burning or disposal on approved site.

Handling

Use barrier cream or oil resistant gloves

Storage

Away from heat and oxidising agent.

Item numbers in **bold** refer to the general assembly drawing and parts list on pages 18-19.

Servicing the Tool

Molykote 55m Grease Safety Data

First Aid

SKIN:

Flush with water. Wipe off.

INGESTION:

No first aid should be needed.

EYES:

Flush with water.

Fire

FLASH POINT: Above 101.1°C. (closed cup)

Explosive Properties: No

Suitable Extinguishing Media: Carbon Dioxide Foam, Dry Powder or fine water spray.

Water can be used to cool fire exposed containers.

Environment

Do not allow large quantities to enter drains or surface waters.

Methods for cleaning up: Scrape up and place in suitable container fitted with a lid. The spilled product produces an extremely slippery surface.

Harmful to aquatic organisms and may cause long-term adverse effects in the aquatic environment. However, due to the physical form and water - insolubility of the product the bioavailability is negligible.

Handling

General ventilation is recommended. Avoid skin and eye contact.

Storage

Do not store with oxidizing agents. Keep container closed and store away from water or moisture.

Molykote 111 Grease Safety Data

First Aid

SKIN:

No first aid should be needed.

INGESTION:

No first aid should be needed.

EYES:

No first aid should be needed.

INHALATION:

No first aid should be needed.

Fire

FLASH POINT: Above 101.1°C. (closed cup)

Explosive Properties: No

Suitable Extinguishing Media: Carbon Dioxide Foam, Dry Powder or fine water spray.

Water can be used to cool fire exposed containers.

Environment

No adverse effects are predicted.

Handling

General ventilation is recommended. Avoid eye contact.

Storage

Do not store with oxidizing agents. Keep container closed and store away from water or moisture.

Servicing the Tool

Annually

(or every 500,000 cycles whichever is the soonest)

Annually or every 500,000 cycles the tool should be completely dismantled and new components should be used where worn, damaged or recommended. All 'O' rings and seals should be renewed and lubricated with Molykote 55m grease for pneumatic sealing or Molykote 111 for hydraulic sealing.

For an easy complete service, Avdel is offering a complete service kit.

SERVICE KIT : 71210-99990		Spanners are specified in inches and across flats unless otherwise stated	
PART N°	DESCRIPTION	PART N°	DESCRIPTION
07900-00667	PISTON SLEEVE	07900-00164	CIRCLIP PLIERS
07900-00692	TRIGGER VALVE EXTRACTOR	07900-00008	7/16 x 1/2 SPANNER
07900-00670	BULLET	07900-00012	9/16 x 5/8 SPANNER
07900-00672	'T' SPANNER	07900-00015	5/8 x 11/16 SPANNER
07900-00706	'T' SPANNER SPIGOT	07900-00686	PEG SPANNER
07900-00684	GUIDE TUBE	07900-00677	SEAL EXTRACTOR
07900-00685	INSERTION ROD	07900-00698	STOP NUT
07900-00351	3 MM ALLEN KEY	07900-00700	PRIMING PUMP
07900-00469	2.5 MM ALLEN KEY	07992-00020	GREASE - MOLY LITHIUM E.P.3753
07900-00158	2 MM PIN PUNCH	07992-00075	GREASE - MOLYKOTE 55M
		07900-00755	GREASE - MOLYKOTE 111

IMPORTANT

Read Safety Instructions on page 4.
The employer is responsible for ensuring that tool maintenance instructions are given to the appropriate personnel.
The operator should not be involved in maintenance or repair of the tool unless properly trained.
The tool should be examined regularly for damage and malfunction.

The airline must be disconnected before any servicing or dismantling is attempted unless specifically instructed otherwise.

It is recommended that any dismantling operation be carried out in clean conditions.

Before proceeding with dismantling, empty the oil from the tool following the first three steps of the 'Priming Procedure' on page 21.

Prior to dismantling the tool it is necessary to remove the nose equipment. For instructions see the nose equipment section, pages 8-11.

For a complete service of the tool, we advise that you proceed with dismantling of sub-assemblies in the order shown.

After any dismantling REMEMBER to prime the tool and to fit an appropriate nose assembly or swivel head.

Head Assembly

- Unscrew retaining nut **26** and pull off stem collector assembly, items **72, 18, 20, 21, 22, 23, 24** and **25**.
- Using the 'T' spanner*, remove end cap **73** together with seal **17** 'O' ring **16** and lip seal **28** and spring **70**.
- Loosen locknut **3** with a spanner* then unscrew jaw spreader housing **1** and 'O' ring **2**.
- Remove locknut **3** together with 'O' rings **49** and **50**.
- Push head piston **7** to the rear and out of head assembly **4** taking care not to damage the cylinder bore.
- Remove seal retainer **30**. Push lip seal **8** to the rear and out of head assembly **4** taking care again not to damage the cylinder bore.
- Remove seal housing **5** and lip seal **67**.

* Item included in the G4 service kit.

Item numbers in **bold** refer to the general assembly drawing and parts list on pages 18-19.

Servicing the Tool

Head Assembly

Assemble in reverse order to dismantling noting the following points:

- Place lip seal **8** onto the insertion rod* ensuring correct orientation. Push the guide tube* into the head of the tool and push the insertion rod* with the seal into place through the guide tube*. Pull the insertion rod* out then the guide tube.
- Drop seal retainer **30** against lip seal **8** large flange first.
- Fit seals **11** and **13** onto the piston.
- Lubricate the cylinder bore and place the piston sleeve* into the back of head assembly **4**. Slide the bullet* onto the threaded part of piston **7** and push the piston with the seals through the piston sleeve* as far as it will go. Slide the bullet* off the piston and remove the piston sleeve.
- Fit seal housing **5** and lip seal **67**.
- Tighten jaw spreader housing **1** fully tightened onto head piston **7** BEFORE tightening locknut **3** against it.
- Use Loctite 932 when reassembling Retaining Nut **26**.

Pneumatic Piston Assembly

- Remove 'ON/OFF' valve assembly **60**.
- Clamp the body of the inverted tool **ACROSS THE AIR INLET BOSSES** in a vice fitted with soft jaws.
- Pull off rubber boot **80**.
- Using the peg spanner* unscrew base cover **40**.
- Unscrew locknuts **76** (2 off) and remove base plate **77**.
- Remove liner **45** together with sealing washers **75** (2 off) and 'O' rings **78** (2 off).
- Remove pneumatic piston assembly **42** together with 'O' ring **39**, lip seal **41** (3 off) and guide ring **35**.
- Engage the seal extractor* into seal assembly **34** and withdraw seal assembly from intensifier tube of head assembly **4**.

Assemble in reverse order.

Valve Spool Assembly

- Remove pneumatic piston assembly **42** and seal assembly **34** as described immediately above.
- Using the 'T' spanner* and 'T' spanner spigot* undo clamp nut **36** and remove it together with top plate **63**, transfer tube assembly **44**, 'O' ring **6**, valve rod **43** and silencer pads **62**.
- Release the tool from the vice and separate body **38** with 'O' ring **31** from handle assembly **32**.
- Remove 'O' ring **33** from the intensifier tube and pull off head assembly **4** from handle assembly **32**.
- Push out valve seat **64** with both 'O' rings **6**.
- Pull out all the components of valve spool assembly **54**.
- Finally remove 'O' ring **59** out of the handle counterbore.

Assemble in reverse order noting the following points -

- Ensure that the central port in valve seat **64** faces upwards.
- Use Loctite 243 when reassembling Clamp Nut **36**, torque to 11ft lb (14.91 Nm).

Trigger

- Using the 2 millimetre diameter pin punch*, drive trigger pin **48** out and lift off trigger **47**.
- Unscrew trigger valve **46** using the trigger valve extractor*.

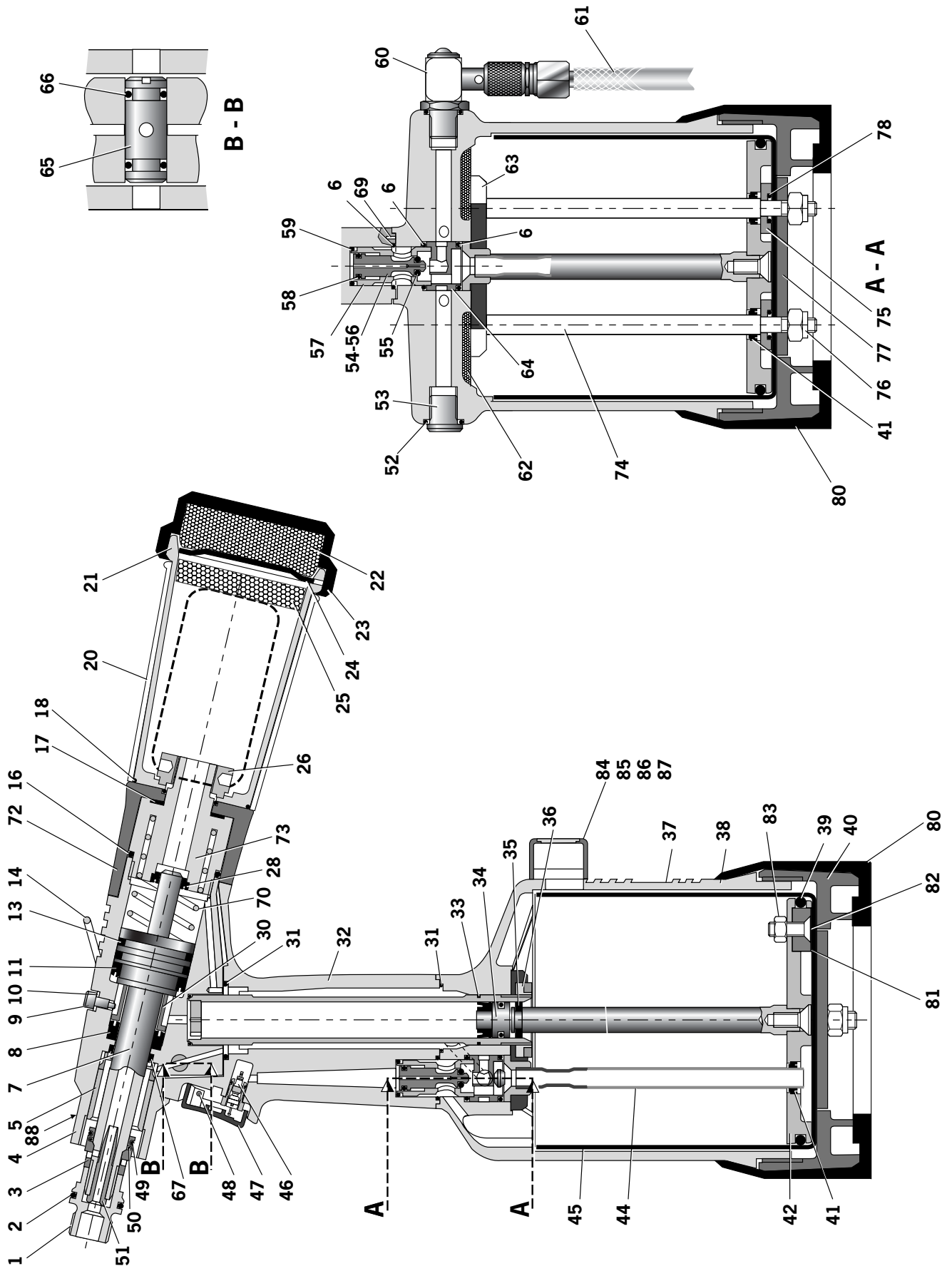
Assemble in reverse order to dismantling.

I M P O R T A N T Check the tool against daily and weekly servicing Priming is ALWAYS necessary after the too has been dismantled and prior to operating.

* Item included in the G4 service kit. For complete list see page 15.
Item numbers in **bold** refer to the general assembly drawing and parts list on pages 18-19.

Notes

General Assembly of Base Tool 71231-02000



Parts List for 71230-02000

71231-02000 PARTS LIST							* These are minimum recommended levels of spares based on regular servicing		
ITEM	PART N°	DESCRIPTION	QTY	SPARES	ITEM	PART N°	DESCRIPTION	QTY	SPARES
01	71210-02101	JAW SPREADER HOUSING	1	-	47	7121002008	TRIGGER	1	-
02	07003-00277	'O' RING	1	1	48	7121002024	TRIGGER PIN	1	-
03	71230-02015	LOCKNUT	1	1	49	07003-00310	'O' RING	2	2
04	71230-03300	HEAD ASSEMBLY	1	-	50	07003-00204	'O' RING	1	1
05	71210-02104	SEAL HOUSING	1	-	51	7123002102	VACUUM SLEEVE	1	-
06	07003-00281	'O' RING	3	3	52	07003-00127	'O' RING	1	1
07	71231-02003	HEAD PISTON	1	-	53	07005-01274	1/8" BSP PLUG	1	-
08	07003-00273	LIP SEAL	1	1	54	7121003400	VALVE SPOOL ASSEMBLY (55 to 58)	1	-
09	71230-02041	SCREW	1	1	55	07003-00268	• 'O' RING	1	2
10	07003-00194	BONDED SEAL	1	2	56	7121003402	• VALVE SPOOL	1	-
11	07003-00341	LIP SEAL	1	1	57	7121003401	• VALVE BODY	1	-
13	07003-00342	'O' RING	2	2	58	07003-00042	• 'O' RING	1	2
14	71210-02022	SUSPENSION RING	1	1	59	07003-00271	'O' RING	1	1
16	07003-00278	'O' RING	1	1	60	7121003700	ON/OFF VALVE ASSEMBLY	1	-
17	71210-02029	SEAL	1	1	61	07008-00010	6" FLEXIBLE HOSE	1	-
18	07003-00311	'O' RING	1	1	62	7121002031	SILENCER	2	2
20	07640-00239	STEM COLLECTOR OUTER	1	-	63	71221-02003	TOP PLATE	1	-
21	71210-02051	STEM COLLECTOR BODY	1	-	64	7121002009	VALVE SEAT	1	1
22	07640-00244	SILENCER	1	1	65	7121002013	ROTARY VALVE	1	-
23	71210-02034	SILENCER CAP	1	-	66	07003-00189	'O' RING	2	2
24	07340-00335	STEM COLLECTOR END CAP	1	-	67	07003-00333	LIP SEAL	1	-
25	71210-02035	SILENCER	1	1	68	07900-00707	TOOL INSTRUCTION MANUAL	1	1
26	71210-02028	RETAINING NUT	1	-	69	07007-00224	SPIROL PINS	2	-
28	07003-00374	LIP SEAL	1	-	70	07490-03002	SPRING	1	-
30	71230-02019	SEAL RETAINER	1	-	72	71403-02110	BOTTLE ADAPTOR ASSEMBLY	1	-
31	07003-00288	'O' RING	1	-	73	71231-02001	END CAP ASSEMBLY	1	-
32	71221-02013	HANDLE ASSEMBLY	2	2	74	71221-02004	TIE ROD	2	-
33	07003-00287	'O' RING	1	1	75	71221-02006	SEALING WASHER	2	-
34	71230-03800	INTENSIFIER SEAL ASSEMBLY	1	1	76	07002-00108	M6 NYLOK NUT	2	-
35	71230-03205	GUIDE RING	1	-	77	71221-02005	BASE PLATE	1	-
36	71210-02014	CLAMP NUT	1	-	78	07003-00027	'O' RING	2	-
37	71231-02027	LABEL	1	1	80	71221-02007	RUBBER BOOT	1	-
38	71221-02001	BODY	1	-	81	07007-01993	CENTRE POLE MAGNET	1	-
39	07003-00182	'O' RING	1	1	82	71221-20104	M5 X 19 COUNTERSUNK SCREW	1	-
40	71221-02002	BASE COVER	1	-	83	07002-00098	M5 NYLOK NUT	1	-
41	07003-00274	LIP SEAL	3	1	84	71221-20105	COUNTER	1	-
42	71231-03210	PNEUMATIC PISTON ASSEMBLY (INCLUDES 41/35/39)	1	-	85	71221-20101	COUNTER Moulding	1	-
44	71230-03600	TRANSFER TUBE ASSEMBLY	1	-	86	71221-20102	SPECIAL M4 SCREW	2	-
45	71221-02008	CYLINDER LINER	1	-	87	71221-20103	MOULD RETAINING NUT	2	-
46	07005-00088	TRIGGER VALVE	1	-	88	07007-01503	LABEL BOOK SYMBOL	1	-

Priming

Priming is ALWAYS necessary after the tool has been dismantled and prior to operating. It may also be necessary to restore the full stroke after considerable use, when the stroke may be reduced and fasteners are not fully placed by one operation of the trigger.

Oil Details

The recommended oil for priming is Hyspin VG32 available in 0.5l (part number 07992-00002) or one gallon containers (part number 07992-00006). Please see safety data below.

Hyspin VG 32 Oil Safety Data

First Aid

SKIN:

Wash thoroughly with soap and water as soon as possible. Casual contact requires no immediate attention. Short term contact requires no immediate attention.

INGESTION:

Seek medical attention immediately. DO NOT induce vomiting.

EYES:

Irrigate immediately with water for several minutes. Although NOT a primary irritant, minor irritation may occur following contact.

Fire

Flash point 232°C. Not classified as flammable.

Suitable extinguishing media: CO₂, dry powder, foam or water fog. DO NOT use water jets.

Environment

WASTE DISPOSAL: Through authorised contractor to a licensed site. May be incinerated. Used product may be sent for reclamation.

SPILLAGE: Prevent entry into drains, sewers and water courses. Soak up with absorbent material.

Handling

Wear eye protection, impervious gloves (e.g. of PVC) and a plastic apron. Use in well ventilated area.

Storage

No special precautions.

Priming Kit

To enable you to follow the priming procedure opposite, you will need to obtain a priming kit:

PRIMING KIT : 07900-00688	
PART N°	DESCRIPTION
07900-00351	3mm ALLEN KEY
07900-00698	STOP NUT
07900-00700	PRIMING PUMP
07900-00224	4mm ALLEN KEY
07900-00734	MAXLOK® STOP NUT

Priming

Priming Procedure

IMPORTANT

DISCONNECT THE TOOL FROM THE AIR SUPPLY OR SWITCH OFF AT VALVE 55.

REMOVE NOSE ASSEMBLY OR SWIVEL HEAD COMPONENTS.

All operations should be carried out on a clean bench, with clean hands in a clean area.

Ensure that the new oil is perfectly clean and free from air bubbles.

Care MUST be taken at all times, to ensure that no foreign matter enters the tool, or serious damage may result.

- Remove bleed screw **9** and seal **10**.
- Connect air supply to tool and switch ON/OFF valve **60** to "ON" position.
- Invert tool over suitable container and actuate trigger. Waste oil will be ejected through the bleed screw hole.

CARE SHALL BE TAKEN TO ENSURE THAT THE BLEED HOLE IS NOT DIRECTED TOWARDS THE OPERATOR OR OTHER PERSONNEL.

- Screw stop nut 07900-00698 onto jaw spreader housing **1**.
- Disconnect air supply to tool or switch ON/OFF valve **60** to 'OFF' position.
- Fill the priming pump with oil.
- Screw priming pump 07900-00700 into the bleed screw hole with seal **10** in place.
- Actuate the priming pump by pressing down and releasing several times until resistance is felt.
- Remove the priming pump and the stop nut.
- Replace bleed screw **9** and seal **10**.
- Connect air supply to tool and switch ON/OFF valve **60** to 'ON' position.
- Check that the stroke of the tool meets the minimum specification of 17 millimetres. To check the stroke, measure the distance between the front face of jaw spreader housing **1** and the front face of the head, BEFORE pressing the trigger and when the trigger is fully actuated. The stroke is the difference between the two measurements. If it does not meet the minimum specification, repeat the priming procedure.

Item numbers in **bold** refer to the general assembly drawing and parts list on pages 18-19.

Fault Diagnosis

Symptom	Possible Cause	Remedy	Page Ref
More than one operation of the trigger needed to place fastener	Air leak	Tighten joints or replace components	
	Insufficient air pressure	Adjust air pressure to within specification	5
	Lack of lubrication	Lubricate tool at air inlet point	7 & 13
	Worn or broken jaws	Fit new jaws	8-11
	Low oil level or air in oil	Prime tool	20-21
	Build up of dirt inside the nose assembly	Service	11
Tool will not grip stem of fastener	Worn or broken jaws	Fit new jaws	8-11
	Build up of dirt inside the nose assembly	Service	11
	Loose jaw housing or chuck collet	Tighten against locking ring	9-11
	Weak or broken spring in nose assembly	Fit new spring	8-11
	Incorrect component in nose assembly	Identify and replace	8-11
	Rotary valve incorrectly adjusted	Read 'Operating Procedure'	7
Jaws will not release broken stem of fastener	Build up of dirt inside the nose assembly	Service	11
	Jaw housing or chuck collet, nose tip and nose casing not properly seated	Tighten nose assembly	9-11
	Weak or broken spring in nose assembly	Fit new spring	8-11
	Air or oil leak	Tighten joints or replace components	
	Low oil level or air present in oil	Prime tool	20-21
Cannot feed next fastener	Broken stems jammed inside tool	Empty stem collector	4 (point 14)
		Check jaw spreader is correct	8-11
		Adjust air pressure to within specification	5
	Rotary valve incorrectly adjusted	Adjust following 'Operating Procedure'	7
Slow cycle	Lack of lubrication	Lubricate tool at air inlet point	7 & 13
	Low air pressure	Adjust air pressure to within the specification	5
	Build up of dirt inside the nose assembly	Service	11
Tool fails to operate	No air pressure	Connect and adjust to within the specification	5
	Damaged trigger valve 42	Replace	16
	Loose stem collector	Tighten retaining nut 22	16
Fastener fails to break	Insufficient air pressure	Adjust air pressure to within specification	5
	Fastener outside tool capability	Use more powerful Genesis tool.	
		Contact Avdel	
	Low oil level or air present in oil	Prime tool	20-21
	Incorrect length of fastener (Maxlok® ONLY)	Change to correct length	
Tool fails to swage collar (Maxlok® ONLY)	Insufficient air pressure	Adjust air pressure to within specification	5
	Worn or damaged anvil	Replace	10-11
	Low oil level or air present in oil	Prime tool	20-21
	Incorrect length of fastener	Change to correct length	

Item numbers in **bold** refer to the general assembly drawing and parts list on pages 18-19.

Other symptoms or failures should be reported to your local Avdel authorised distributor or repair centre.

Declaration of Conformity

We, Avdel UK Limited, Watchmead Industrial Estate, Welwyn Garden City, Herts, AL7 1LY
declare under our sole responsibility that the product:

Model G4 HD

Serial No.

to which this declaration relates is in conformity with the following standards:

EN ISO 12100 - parts 1 & 2

BS EN ISO 8662 - part 6

BS EN ISO 3744

ISO EN 792 part 13 - 2000

BS EN ISO 11202

BS EN 982

BS EN 983

following the provisions of the Machine Directive 89/392/EC

(as amended by Directive 91/368/EC, 93/44/EC as superceded by 98/37/EC and 93/68/EC)



A. Seewraj - Product Engineering Manager - Automation Tools

Date of issue



**This box contains a power tool which is in
conformity with Machines Directive
89/392/EC. The 'Declaration of Conformity'
is contained within.**



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